

New Jersey Department of Environmental Protection  
Division of Watershed Management  
Southern Planning Bureau

## **COOPERATIVE COASTAL MONITORING PROGRAM**

### **Summary Report for 2001, 2002 and 2003**

#### Introduction

Agencies that participate in the Cooperative Coastal Monitoring Program (CCMP) perform sanitary surveys of beach areas and monitor concentrations of bacteria in nearshore coastal and estuarine waters to assess the acceptability of these waters for recreational bathing. These activities and the resulting data are used to respond to immediate public health concerns associated with recreational water quality and to eliminate the sources of fecal contamination that impact coastal waters. Partial funding for the CCMP comes from the United States Environmental Protection Agency BEACH (Beaches Environmental Assessment and Coastal Health) Act grants. BEACH Development and Implementation grants were awarded in 2001 and 2002.

As part of this program, DEP routinely inspects the 17 wastewater treatment facilities that discharge to the ocean (Appendix 1). DEP also performs aerial surveillance of New Jersey nearshore coastal waters and the Hudson-Raritan estuaries to observe changing coastal water quality conditions and potential pollution sources. The participating agencies are:

Atlantic County Health Department  
Cape May County Health Department  
Middlesex County Health Department  
Monmouth County Health Department  
Ocean County Health Department  
Atlantic City Health Department  
Long Beach Township Health Department  
Long Branch Health Department  
Matawan Health Department  
Middletown Health Department  
Northeast Monmouth Regional Health Department  
Red Bank Health Department  
New Jersey Department of Environmental Protection  
New Jersey Department of Health and Senior Services

To implement a more comprehensive approach to the enhancement of New Jersey's water quality, NJDEP has joined with the USEPA and others in the private and public sectors to promote a watershed management approach as a means to further restore and maintain the physical, chemical and biological integrity of our water resources and the surrounding ecosystems on a statewide basis. A watershed management approach is a strategic approach to operating existing regulatory and nonregulatory programs more efficiently and effectively to protect, enhance and restore the state's water resources. This initiative will improve New Jersey's surface and ground water resources by better integrating existing water resource management programs among governmental entities and between public and private sectors. This approach will accelerate improvements in the quality of our natural resources as a result of the increased coordination and pooling of resources.

#### Procedures

Chapter IX of the State Sanitary Code N.J.A.C. 8:26 and the DEP *Field Sampling Procedures Manual* prescribe the sampling techniques and beach opening and closing procedures the agencies use for the CCMP. The agencies perform routine sampling from mid-May through mid-September on Mondays. Samples are analyzed for fecal coliform concentrations using DEP-certified laboratories; analyses provide results within 24 hours of sampling. Beginning in 1998 samples have been collected and analyzed for enterococcus bacteria at a subset of ocean and bay stations in all of the coastal counties.

The CCMP included water quality monitoring at 187 ocean stations and 139 bay stations in 2001, 2002 and 2003. Most stations coincided with recreational beaches. However, in 2001 3 ocean stations and 92 bay stations and in 2002, 6 ocean stations and 97 bay stations and in 2003, 5 ocean stations and 93 bay stations were not located at recreational beaches. These environmental stations are used to assess water quality trends only. Recreational stations are sampled to assess trends and to protect recreational bathers from polluted water. Most ocean stations are sampled to evaluate the water quality at several lifeguarded beaches in an area rather than just one lifeguarded beach. These areas consist of contiguous, similar beaches with no likely pollution sources. Individual beaches are assigned monitoring stations when effects from potential pollution sources are possible. A monitoring station is assigned to each recreational bay beach because of their noncontiguous locations.

Recreational beaches, both ocean and bay, are subject to opening and closing procedures of the State Sanitary Code and, therefore, must be resampled when during routine sampling bacteria concentrations exceed the primary contact standard of 200 fecal coliforms per 100 mL of sample. Consecutive samples that exceed the standard require the closing of the beach until a sample is obtained that is within the standard. When high bacteria concentrations are recorded at an ocean station, the sampling is extended linearly along the beach to determine the extent of the problem and the pollution source. This “bracket sampling” can result in an extension of the beach closing to contiguous lifeguarded beaches. Sampling is always performed in conjunction with a sanitary survey, which includes identifying possible pollution sources and observing water and shoreline conditions.

Health or enforcement agencies may close beaches at any time at their discretion to protect the public’s health and safety.

### Beach Closings

The participating health agencies closed 40, 16, and 80 ocean beaches in the 2001, 2002 and 2003 summer seasons, respectively. Detailed beach closing information, including the specific beaches closed and reasons for the closings for this period are presented in Appendix 2. Table 1 below presents the numbers of closings from 1992 through 2003.

Table 1: Numbers of Ocean and Bay Beach Closings

<u>Ocean Closings</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
for bacteria	26	34	49	4	7	18	3	8	8	16	0	9
precautionary	1	0	1	0	3	0	0	6	3	24	16	58
for floatables	0	0	0	0	0	0	0	0	0	0	0	13
total	27	34	50	4	10	18	3	14	11	40	16	80
<u>Bay Closings</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
for bacteria	84	52	164	71	65	23	30	21	22	114	7	82
precautionary	0	2	7	2	10	1	6	0	0	4	8	26
for floatables	0	0	0	0	0	0	0	0	0	0	0	0
total	84	54	171	73	75	24	36	21	22	118	15	108

Closings include those required for consecutive high fecal coliform concentrations and by health agency discretion due to public health concerns. The large majority of the closings in the above-listed years were related to the presence of contaminated stormwater. In 1990, floatable debris was responsible for a total of 10 separate beach closings. In the following twelve years, no closings have been due to floatables however, in 2003 thirteen separate closings were due to reported washups of trash and medical waste. The CCMP does not record closings related to rough seas, beach maintenance projects, shark sitings, and fish and clam washups. The CCMP also does not include those closings that are briefly in effect during the assessment of water conditions by local officials. Only

those beach closings ordered by local health officials are included here.

The increase in ocean and bay beach closings in the 2001 and 2003 summer seasons may be attributed to frequent periods of intense rainfall and the resulting stormwater discharges. The ocean beaches of Spring Lake were particularly affected by the rainfall's impact on the Wreck Pond discharge. The volume of flow through the Wreck Pond watershed caused significant flows to the ocean and, with those flows, an extraordinary amount of bacteria-laden sediment. The affected beaches extended through the 2 1/2 miles of Spring Lake for two days in August, 2001. In 2002 a precautionary beach closing plan was implemented in Spring Lake. It requires that the two beaches north of the Wreck Pond outfall, Brown Avenue and York Avenue, close for a specified time period following a rain event. The bathing areas of the two beaches are automatically closed for 24 hours after the end of all rainfalls greater than .1 inch or that cause an increased flow in storm drains; and for 48 hours from the end of all rainfalls greater than 2.8 inches within a 24 hour period. In addition, lifeguards (or staff as designated by Spring Lake) will prohibit swimming near any parts of these beaches where the stormwater plume is observed to be mixing within the swimming area. In 2002 Brown and York Avenue beaches were closed a total of eight times and in 2003 the beaches were closed a total of 26 times as required by the rainfall policy.

Sources of pollution to the pond include stormwater discharges directly to the pond, a large migratory and non-migratory bird population, pet waste and lawn fertilization. All of these factors contribute to the eutrophication of the pond and to the elevated levels of fecal coliform bacteria discharged to the ocean during rain events. In 2001, thirty-five separate beach closings (six at Brown Avenue, twenty-nine at adjacent beaches in Spring Lake and Sea Girt) can be attributed to contaminated stormwater from Wreck Pond. Sediment in Wreck Pond has been analyzed and been found to contain high concentrations of fecal coliform bacteria. The Division of Watershed Management is currently working with local stakeholders to address the elevated bacteria levels in the pond.

#### Coastal Pollution Incidents of Note

The following pollution incidents received public, DEP, and local health agency attention, although the incidents did not always require beach closings:

##### 2001

On May 27 there were two separate needle stick incidents in Long Beach Township, one in North Beach Haven and one in Brighton Beach. Both injured parties received medical attention.

On May 28 the Monmouth County Health Department (MCHD) reported that approximately 50 syringes were found in the wrack line at the beach in Union Beach. The MCHD manually collected all visible syringes and then used a front-end loader to collect all the debris in the wrack line. No injuries were reported.

On June 28 the DEP hotline received a report that a Royal Air Force jet experienced an emergency during flight and released 130,000 pounds of jet fuel into the atmosphere approximately 8000 feet above Cape May. The fuel evaporated before it hit the ground. No additional reports or complaints were received.

On July 23 the DEP hotline received numerous reports of a strong odor coming from the ocean. News reports attributed the odor to a plankton bloom however Coast Guard crews patrolled the area and found no apparent cause of the odor. Satellite photos of the area also did not support the theory that the odor was caused by plankton.

On August 13 a small fish kill was reported in Neptune. The Monmouth County Health Department determined that the fish kill was due to a blue-green algae bloom and low dissolved oxygen.

On the morning of August 14 Brown Avenue beach in Spring Lake was closed by lifeguards based on a visual inspection of water quality. Heavy rain over the previous weekend caused a large amount of bacteria laden sediment to be discharged from the Wreck Pond stormwater outfall pipe which is next to the Brown Avenue bathing beach. Sample results for Brown Avenue and other beaches near the outfall pipe were extremely elevated and the Monmouth County Health Department closed all of the beaches in Spring Lake later that day. Most of

the beaches in Spring Lake were reopened the following day but Brown Avenue and several other nearby beaches remained closed for three days.

On August 24 four ocean beaches in Atlantic City were closed as a precaution due to a sewer line leak at Central Pier. Water quality samples were collected and bacteria levels were within the standard and the beaches were reopened the next day.

On September 6 the DEP hotline received several reports of large numbers of rotting menhaden washing onto the beach in Stone Harbor. Most of the fish were removed from the beach and taken to a landfill. The source was not identified but was probably a commercial fishing vessel that either dumped its catch or ripped a net.

## 2002

On May 29 a three-year-old child was stuck by a needle while playing on the beach in Sea Bright. The child received medical attention and local health officials and DHSS staff provided information on where to have the needle tested.

On July 15 the Monmouth County Health Department reported that a syringe on Union Beach stuck two persons. The local police department collected the syringe and the injured persons were taken to a local hospital where they were treated and released.

On August 21 the Cape May County Health Department reported a 3-mile slick of dead bunker about a mile off the beach from Avalon south to Stone Harbor. The fish were probably from a bait boat that ripped a net and lost the catch. The dead fish did not wash onto the beach and no beaches were closed.

## 2003

On June 13 small greaseballs were reported along a two-block stretch of beach in Long Branch. They were picked up during normal beach cleaning operations and no beaches were closed.

On July 11 the DEP hotline received a report of medical waste washing on to two beaches in Dover Township. Eleven beaches were closed while DEP and local health department officials investigated and removed the debris. There was very little medical-type waste present on the beach however there were higher than usual amounts of street and CSO litter. All of the litter was removed from the beaches. One woman stepped on a needle and received medical attention. The beaches were reopened the following morning.

On July 31 a 14 year-old girl participating in a junior lifeguard tournament in Spring Lake dove into the sand and came up with a wound on her hand. A few minutes later a syringe was found in the area. The girl was treated by a local EMT and continued with the tournament. Her parents were notified and the Monmouth County Health Department picked up the syringe for disposal.

On August 19 two private beaches in Ocean County closed following the washup of approximately 50 syringes. Trash slicks were also observed several hundred yards off the beach and winds were expected to wash much of it on to the beaches. DEP and the Ocean County Health Department kept officials at the beaches throughout the day. Several miles of beach were inspected but no further washups occurred. The beaches reopened the following morning.

## Standards

As previously stated, the recreational or primary contact standard is 200 fecal coliforms per 100 mL of sample. This standard is part of the State Sanitary Code. Two consecutive concentrations exceeding this standard requires

the health agency to close the beach where the concentrations were recorded.

DEP Surface Water Quality Standards (SWQS) require that the fecal coliform concentrations not exceed a geometric average of 50 fecal coliforms per 100 mL of sample with a 5 sample minimum over 30 days. Bay waters that lie within the CCMP area from Raritan Bay to Delaware Bay must not exceed a geometric average of 200 fecal coliforms per 100 mL of sample. For the CCMP, all samples taken from a monitoring station during the summer sampling season are averaged geometrically and compared to the standard. Seasonal averages are presented in Appendix 3. Table 2 presents the number of monitoring stations that exceeded the respective surface water quality standard.

Table 2: Monitoring Stations which Exceeded Surface Water Quality Standards

<u>Ocean Stations</u>	<u>Fecal Coliform Average</u>	<u>SWQS Standard</u>
2001 – Brown Ave., Spring Lake	62.1	50
2002 - none		
2003 - none		
<u>Bay Stations</u>	<u>Fecal Coliform Average</u>	<u>SWQS Standard</u>
2001-Windward Beach, Brick	237.6	200
West Beach, Beachwood	218.6	200
East Beach, Beachwood	217	200
2002 - none		
2003 – Windward Beach, Brick	288.1	200
West Beach, Beachwood	277.7	200
East Beach, Beachwood	251.9	200

In 2002 100% of all ocean and bay stations were within the SWQS. In 2001 99.5% of ocean stations and 97.8% of bay stations were within SWQS and in 2003 100% of all ocean stations and 97.9% of all bay stations were within the SWQS.

#### Clean Shores Program

DEP uses state inmates to remove floatable debris from the shorelines of the Hudson, Raritan, and Delaware estuaries and barrier island bays. Non-recreational shorelines that have been left unattended serve as reservoirs of floatable debris that can be refloated during extreme high tides and can wash up on recreational beaches, become floating hazards to navigation, or impact marine life. The Clean Shores Program conducts shoreline cleanups year-round. In the years 2001, 2002 and 2003, the Clean Shores Program removed 4.7, 4.2 and 5 million pounds of debris from 172, 151.2 and 107.8 miles of shoreline, respectively.

#### Adopt A Beach Program

This program fosters citizen stewardship of coastal beaches and teaches the public about the hazards of marine debris to marine life by providing information and field experience. Twice a year, volunteers in groups or as individuals clean their selected beaches and count and categorize the debris. The cleanup activities prevent marine debris from returning to the coastal waters and assist the DEP in tracking pollution sources. Volunteers in 100 groups removed 79,760 items in 2001, 80,205 in 2002 and 50,437 items in 2003 from the state's beaches. DEP forwards the marine debris information to the Ocean Conservancy to be included in its national and international marine debris databases.